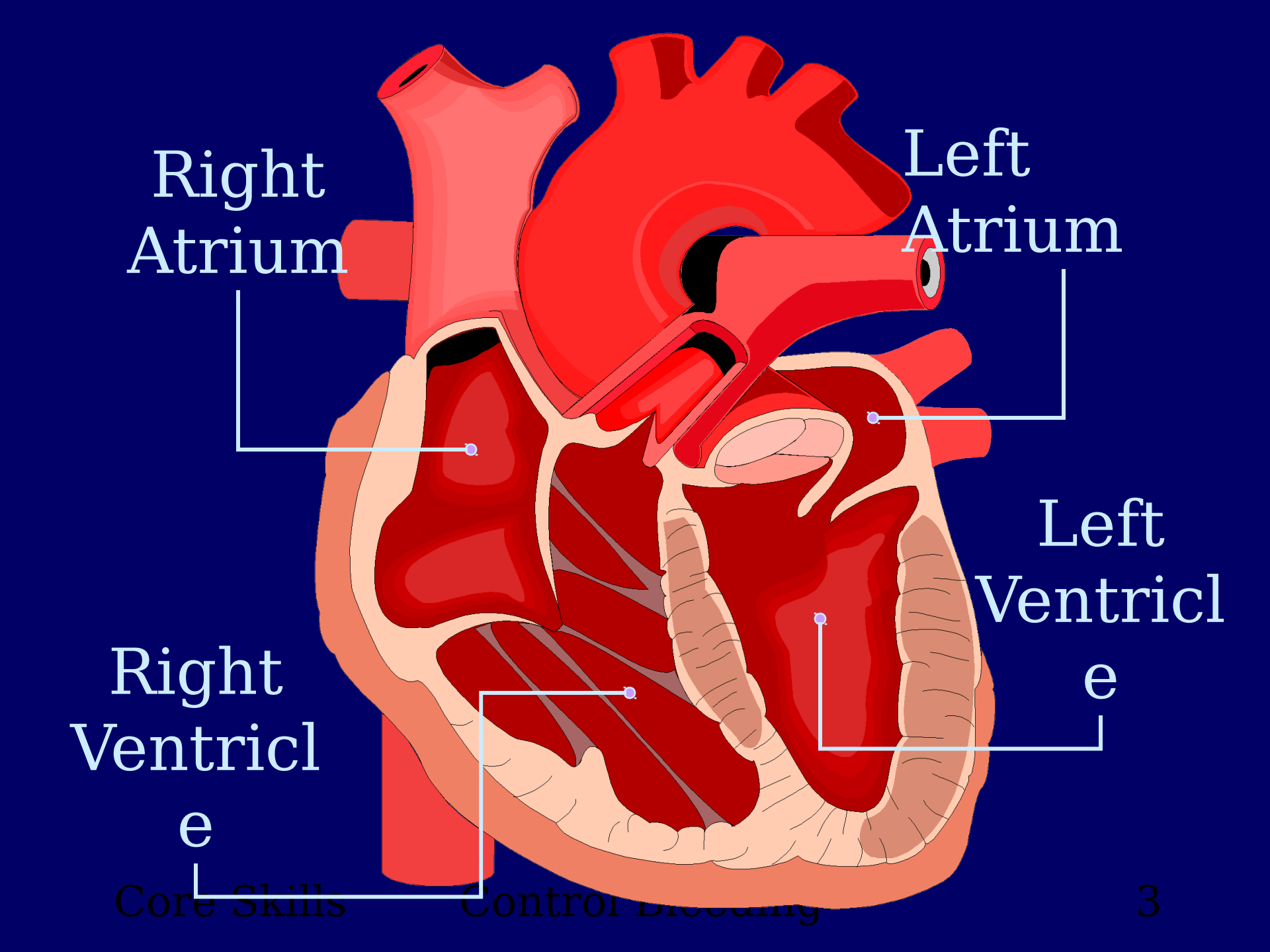
Control Bleeding and Hypovolemic Shock

Introduction

- **Review methods of controlling bleeding**
- **Hemorrhage control save lives**
- **ABC Measures**
  - **Clear the airway/restoring breathing**
  - **Stop the bleeding**
  - **Protect the wound**
  - **Treat/prevent shock**
- **A-B-C measures apply to** all **injuries**


Right Atrium
Left Atrium
Left Ventricle
Right Ventricle

Function of Blood

- **Transport O^2 and nutrients to the cells**
- **Removes CO^2 and other waste products**
- **Detoxification and elimination**

Plasma

- Serum, protein and chemical substances
- Watery, salty fluid
- Constitutes over half the volume of blood
- Transports substances to various structures
- Transports waste products
- Carries red and white blood cells platelets

Red Blood Cells

- **Erythrocytes**
- **Primary function**
  - **Carry oxygen to tiss**
  - **Carry carbon dioxid**
    away from ti
- **Red color to blood**

White Blood Cells

- **Leukocytes**
- **Destroy microorganisms**
- **Produce antibodie**

Platelets

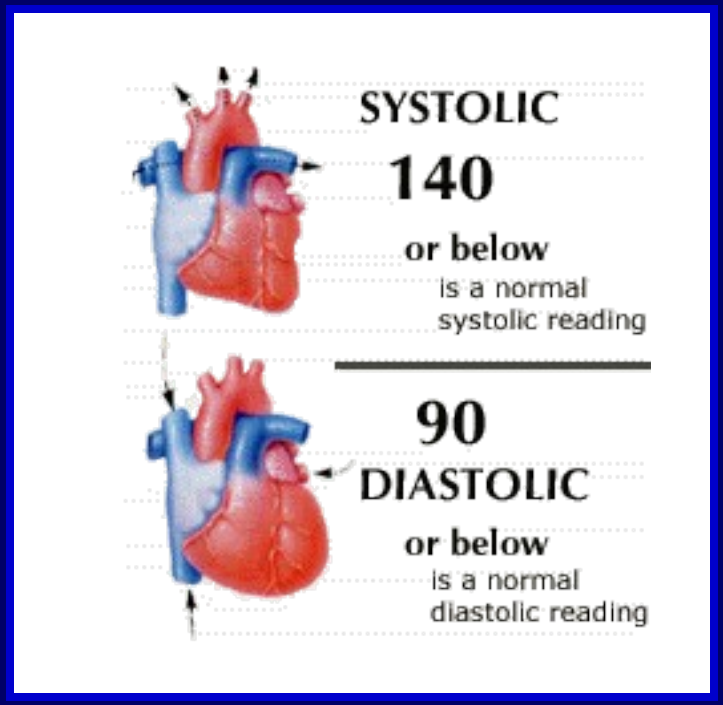
- **Thrombocytes**
- **Membrane-enclosed fragments of sp cells**
- **Release chemical fa to form b**

Pulses

- **Left ventricle contracts**
- **Peripheral pulse**
  - **Radial**
  - **Brachial**
  - **Posterior tibial**
  - **Dorsalis pedis**
- **Central pulses**
  - **Carotid**
  - **Femoral**

Blood Pressure

- **Exerts pressure against blood vessels walls**
- **Systolic**
  - **Pressure created in the arteries**
  - **Reported first**
- **Diastolic**
  - **Left ventricle relaxed and refilling**
  - **Reported second**



Blood

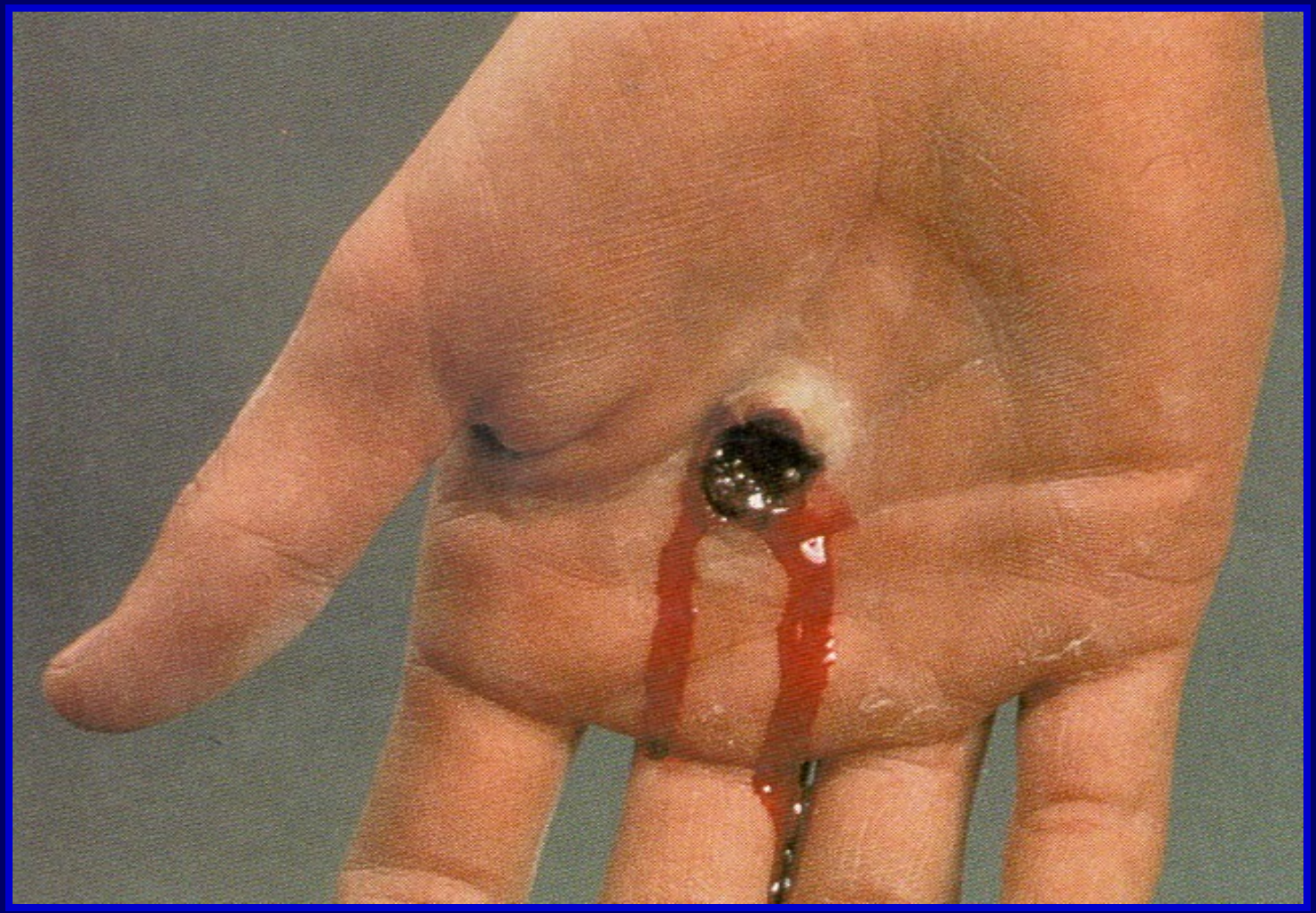
- **Hemorrhage or bleeding**
- **Escape of blood from capillaries, veins, and arteries**
- **Adult body:**
  - **Contains approximately 5 to 6 liters of blood**
  - **1 pint of blood without harmful effects**
  - **2 pints may cause shock**

External Bleeding

- **Incision**
- **Laceration**
- **Abrasion**
- **Puncture wou**
- **Amputation**

Laceration

Puncture Wound



Amputation

Abrasion

Incision

Internal Bleeding

- **Not always obvious**
- **Suspicion based on mechanism of injury**
  - **Falls**
  - **Blast injuries**
  - **Penetrating trauma**

Internal Bleeding

Injured Internal Organs

Sources of Bleeding

- Arterial

  Rapid, profuse and pulsating; bright red in color
- Venous

  Steady flow; dark red or maroon in color
- Capillary

  Slow and oozing; often clots spontaneously

Hypovolemic Shock

- Inadequate tissue perfusion
- Causes

  Hemorrhage

  Severe burns

  Severe vomiting and/or diarrhea

Clinical Signs of Acute Hemorrhage

Class	% Blood Loss	Clinical Signs
I	Up to 750 ml (15%)	Slight increase in HR; no change in BP or respirations
II	750-1500 ml (15-30%)	Increased HR and respirations; increased diastolic BP; anxiety, fright or hostility
III	1500-2000 ml (30-40%)	Increased HR and respirations; fall in systolic BP; significant AMS
IV	>2000 (>40%)	Severe tachycardia; severe lowering of BP; cold, pale skin; severe AMS

Other Common Signs of Hypovolemic Shock

- ✓ Cold, clammy skin
- ✓ Cyanosis- nail beds, lips and ear lobes
- ✓ Weak, thready, rapid pulse
- ✓ Shallow respirations
- ✓ Oliguria
- ✓ Listlessness, stupor, LOC
- ✓ Excessive thirst

Internal Signs of Hemorrhage

- Soft tissue bruising
- Abdominal tenderness
- Hemoptysis
- Hematemesis
- Melena

Treatment-Direct Pressure

- First, expose the wound!!!
- Place a sterile dressin
  over the wound an
  apply pressure
- Use a bandage or
  cravat to tie a knot over the dressing covering the wound

Treatment-Elevation

- Raise injured extremity above the heart
- Used together with direct pressure
- Use an object to maintain elevation
- Utilize bystanders

Treatment-Pressure Dressing

- Use a pressure dressing if bleeding is NOT controlled with direct pressure
- Place Kerlex, ace wrap over previous dressing
- Wrap this dressing over the wound and prev dressing

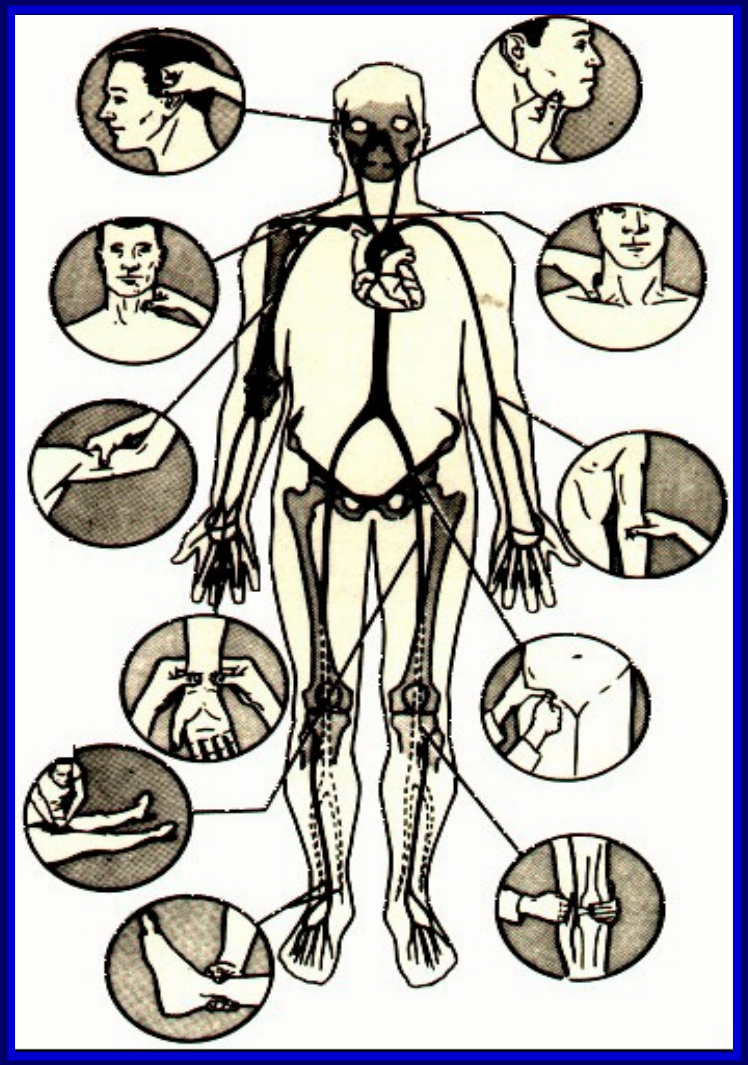
Pressure Points

- **Severe bleeding**
- **Bleeding not controlled by direct pressure and elevation**
- **Apply pressure to appropriate pressure point**

Pressure Points

Pressure Points

- Temporal
- Carotid
- Brachial
- Radial
- Femoral
- Posterior / Anterior tibialas



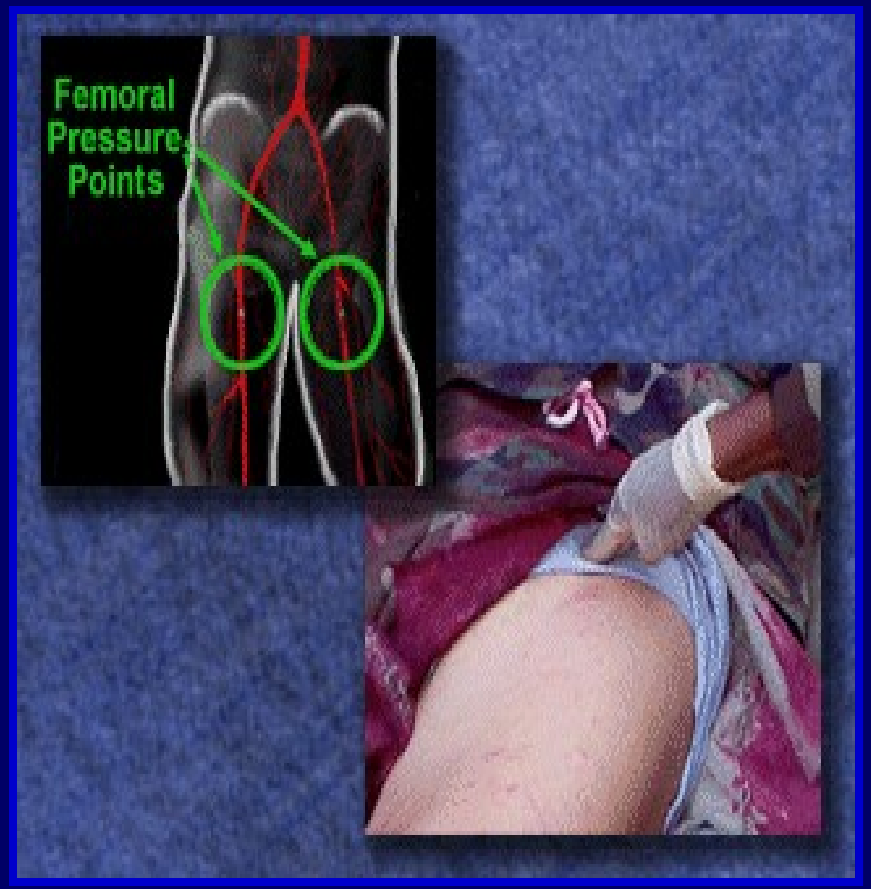
Brachial Pressure Point

- **Lower part of the upper arm**
- **Above the elbow in the groove between muscles**
- **Using fingers or thumb**
- **Apply pressure to the inside of the arm over the bone**

Brachial Pressure Point

Femoral Pressure Point

- Control severe bleeding of thigh and lower leg
- Front, center part of crease in the groin



Application of Pressure Points

- **Position the casualty on his or her back**
- **Kneel on opposite side from wound**
- **Place heel of hand directly on pressure point**
- **Lean forward to apply pressure**
- **If bleeding is not controlled**
  - **Press directly over artery**
  - **Press heel of other hand on fingertips**

Splinting

- **Immobilization is one of the best ways to stop bleeding**
- **Broken bone fragments may grate on blood vessels**
- **Muscular activity can increase rate of blood flow**
- **Air splints used to apply direct pressure**

Air Splints

Tourniquet

- **Direct pressure, elevation, pressure dressings or pressure points will not stop some bleeding**
- **In these cases, a tourniquet is a lifesavin**

Tourniquet

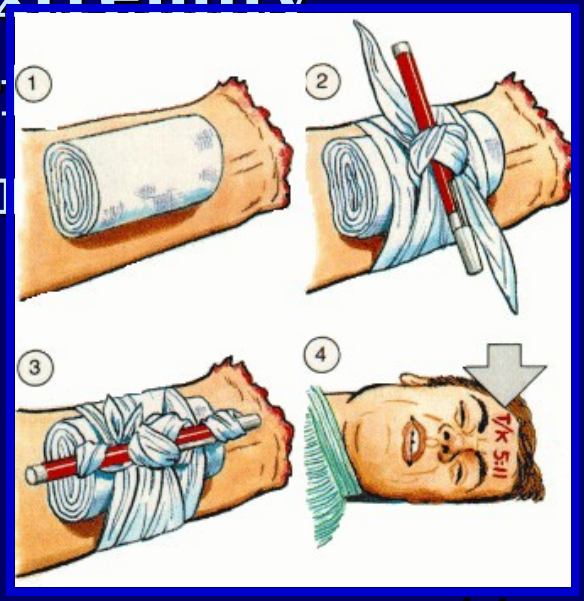
- Forceful, arterial bleeding (amputation) may require early use of a tourniquet.
- DO NOT WASTE TIME attempting a pressure [illegible]se cases

Tourniquet

- Use a cravat, if available. If not, use:
  a belt
  a rope
  a BP cuff
  rope
  strap from LBE
  or any other material available

Apply a Tourniquet

- **Place tourniquet between heart and wound**
- **Place pad over artery to be compressed**
- **Wrap tourniquet around extremity**
- **Tie half-knot on upper sur**
- **Place short stick on half-k**
- **Tie a square knot**
- **Twist stick to tighten**
- **UNTIL BLEEDING STOPS**



Apply a Tourniquet

- **Never cover a tourniquet**
- **'T" on casualty's forehead**
- **Never loosen or remove a tourniquet**

Amputation

- **Apply dressing to cover end of the stump**
- **Control Bleeding**
  - **Blood vessels collapse, re or curl closed t bleeding**
  - **Direct pressure, pressure dressing or tourniquet**

Preservation of Amputation Parts

- **Rinse amputated part free of debris**
- **Wrap loosely in saline-moistened sterile gauze**
- **Seal amputated part in a plastic bag or cravat**
- **Place in a cool container, do not freeze**

- Never **place amputated part in water**
- Never **place amputated part directly on ice**
- Never **use dry ice to cool an amputated part**

Hemostatic Agents

- **Quickclot® hemostatic powder**
- **Chitosan® hemostatic dressing**

Treatment Goals

- Directed at adequate oxygenation and ventilation
- STOP THE BLEEDING
- Maintain circulation with fluid replacement

Treatment

- ABCs
- Circulation and hemorrhage control
- -IV access
- -Control external bleeding
- Baseline vitals
- Brief neuro exam
- Position casualty and expose hemorrhage sites

Treatment

- Maintain body temperature
- IV fluid administration- 2 large bore IVs
- Perform serial neurological exams every 5 minutes
- Perform vital signs every 5 minutes
- Transport to medical facility ASAP

Hextend

- **Superficial (> 50% of injured**
- **Significant extremity or truncal**
- **Significant blood loss**
  - **Incoherent**
  - **Loss of radial pulse**

Summary

- **A&P of Circulatory System**
- **Identify Hemorrhage and Hypovolemic Shock**
- **Provide Treatment for Hemorrhage**
- **Provide Treatment for Hypovolemic Shock**

QUESTIONS ??